United Nations A/CONF.199/PC/22

General Assembly

Distr.: General
29 May 2002

Original: English

**Commission on Sustainable Development acting as the preparatory committee for the World Summit on Sustainable Development**

**Fourth session**

Bali, Indonesia, 27 May-7 June 2002

Item 2 of the provisional agenda*

**Consideration of the revised Chairman's paper transmitted from the third session of the Commission acting as the preparatory committee, together with other relevant inputs to the preparatory process**

## Letter dated 24 May 2002 from the Permanent Representative of China to the United Nations addressed to the Secretary-General

I have the honour to transmit to you herewith the documents of the United Nations Forum on New and Emerging Technologies and Sustainable Development, which was hosted by the Government of the People's Republic of China and held in Beijing from 15 to 17 April 2002 (see annexes I-IV).

Considering the importance of the Forum as a contribution to the preparation of the World Summit on Sustainable Development, I would be grateful if you could have the present letter and its annex circulated as a document of the fourth session of the Commission on Sustainable Development acting as the Preparatory Committee for the Summit.

(*Signed*) **Wang** Yingfan
Ambassador

A/CONF.199/PC/15

02-40293 (E) 310502

## Annex I to the letter dated 24 May 2002 from the Permanent Representative of China to the United Nations addressed to the Secretary-General

### Beijing Communiqué
### On New and Emerging Technologies and Sustainable Development: Science-Business Partnerships

A United Nations Forum on New and Emerging Technologies and Sustainable Development was held in Beijing, China, from 15 to 17 April 2002. It was attended by representatives of Governments, business and industry, academia and professional institutions from various countries around the world. The Forum was opened by Madame Deng Nan, Vice Minister of the Ministry of Science and Technology of the People's Republic of China, and Mr. Nitin Desai, United Nations Under-Secretary- General for Economic and Social Affairs and Secretary-General of the World Summit on Sustainable Development.

Science and technology have had a profound impact on human development. In this age of globalization, rapid advances are being made in such fields as information, telecommunications, clean environment, energy, health, materials, and transportation technologies, as well as biotechnology, electronics and nanotechnology - the new and emerging technologies (NETs).

These new scientific and technological (S&T) advances and their applications are imposing a new social and ethical responsibility on the scientific and technological community to direct their application of these new developments in ways that strengthen efforts for achieving the goals of sustainable development.

Achieving the goals of sustainable development, as spelled out in Agenda 21, the programme of action of the United Nations Conference on Environment and Development, requires the application of science and environmentally sound technologies to eliminating poverty, and sustaining economic development, advancing social priorities and protecting the environment. The NETs have the potential to play an important role in achieving these goals. In order for developing countries to meet their sustainable development goals, they should have access to environmentally sound technologies, which requires technology transfer, technical cooperation and building an S&T capacity to participate in the development and adaptation of these technologies to local conditions.

The current North-South gap in the generation of NETs and their application to practical problems constitutes a "technological divide" that must be bridged if developing nations are to participate effectively in achieving the goals of sustainable development. As efforts to date have been inadequate, the challenge is to find effective and innovative ways of ensuring transfer of technology and knowledge to and building and strengthening of S&T capacities in developing countries. Developing countries need to increase their own efforts to build S&T capacity in order that they can absorb the new and emerging technologies.

In addition to the major goals of reducing hunger, improving access to safe drinking water, reducing poverty and improving health care in developing countries, the Millennium Declaration commits Governments to "ensuring that the benefits of new technologies, especially information and communication technologies, are available

to all", and to "developing strong partnerships with the private sector and civil society organizations in pursuit of development and poverty eradication."

In an effort to identify more effective ways of ensuring technology transfer and the strengthening of S&T capacity, the Forum focused on partnerships between the S&T and international business communities. Experience to date has shown that such partnerships can be an effective way of providing S&T inputs required by industries, transferring technologies, strengthening S&T capacities and eventually expanding markets in developing countries.

However, where S&T human, institutional, infrastructural and/or managerial capacities need strengthening, private corporations should consider supporting the strengthening of these capacities as a long-term investment for both local S&T resources and markets. Like the S&T community, the international business community has a responsibility to direct more of its activities toward achieving the goals of sustainable development, especially to reducing material and energy inputs, and waste emissions, and to contributing to improving the economic and social conditions in developing countries through poverty reduction and providing opportunities for entry into the global economy.

Governments should continue to have an important role to play in attracting and encouraging investment and providing an enabling environment for these partnerships. The international community, especially the developed countries, should assist the developing countries in promoting technology transfer as well as application of NETs and S&T capacity-building for achieving the goals of sustainable development. Moreover, policies for providing education and training opportunities are essential to the development of the needed S&T capacities.

The vehicles for business-science partnerships range from direct foreign investment of venture capital, through joint ventures, to the establishment of major R&D and even manufacturing facilities. Nevertheless, there is a continuing need for closer interaction between S&T institutions in developed and developing countries, through exchange of personnel, joint programmes and information exchange.

A special effort should be made to direct joint R&D efforts of the S&T and international business communities to problems and conditions specific to developing countries, including, but not limited to: HIV/AIDS and other communicable and tropical diseases, food security, fresh water availability, drought and aridity, natural disasters, and environmental protection. The developed countries should fulfill their commitments to promote technology transfer to the developing countries on a concessional or preferential basis, in particular transferring of the publicly owned, environmentally sound technologies to developing countries. The developing countries should create domestic environments that are conducive to technology transfer and diffusion for sustainable development.

Among the many new vistas for purposeful cooperation between the S&T and business communities, science and technology parks can be an effective mechanism for national, regional and international development of integrated strategies for building research, innovation, training and economic development through appropriate strategic development of emerging technologies. Regional and international networking is a way to utilize existing worldwide expertise and maximize benefits at the national and regional levels. An attractive option is to explore the possibility of establishing an international network of science and

technology parks devoted to NETs, with one of the parks serving as a focal point for an international network of science and technology parks for sustainable development. In addition to providing space for business and production, the science and technology park should house centres for S&T research, innovation and incubation, training, and forecasting, as well as facilities for fairs, exhibitions and market development through popularization.

A task force consisting of eminent personalities drawn from the S&T and business communities, and Government could be constituted to review the experience of existing science and technology parks, target sustainable development technologies, explore potential opportunities for international partnership through science-and-technology-park mechanism and propose a plan fostering such cooperation.

Considering that the NETs involve a diverse set of disciplines and applications, a network of science and technology parks following the CGIAR (Consultative Group on International Agricultural Research) model could be an effective way of meeting sustainable development challenges. Thus, some of the science and technology parks could seek strengths in certain technological areas, such as biotechnology, and others could address the set of problems that characterize a region, such as a mountainous terrain or remote oceanic islands.

The Forum extends a sincere expression of gratitude to the People's Republic of China, and especially to its Ministry of Science and Technology, for the excellent contribution to the Forum.

*Adopted in Beijing, China, on 17 April 2002*

**Annex II to the letter dated 24 May 2002 from the Permanent Representative of China to the United Nations addressed to the Secretary-General**

# Proposal for the Establishment of A Science and Technology Park Network Mechanism Designed to Foster International Partnerships for Sustainable Development

17 April 2002, Beijing, China

## Background

A number of "Science and Technology Parks" have been developed around the world as a means of stimulating start-up and growth of technologically intensive, knowledge-based businesses, and of facilitating the links between the research and industrial communities. These are typically designed to serve: as an incubating base for private sector ventures; as a training base for persons with new, innovating skills; and as an experimental zone for new technologies.

Such Science and Technology Parks can be found throughout the world, in both developed and developing countries. An International Association of Science Parks (IASP) exists that has membership from 55 countries. In terms of the technology sectors, most of the existing Science and Technology Parks worldwide emphasize new and emerging technologies. According to worldwide statistics, 26 per cent are engaged in Information and Telecommunications Technologies, 20 per cent in Biotechnologies, 19 per cent in Electronics and Computers, 9 per cent in Agro-food, 8 per cent in Environmental Technologies, 6 per cent in new materials, and 5 per cent in pharmaceuticals. In terms of tenants in the existing Science and Technology Parks, 51 per cent are services companies, 26 per cent are research activities, and 18 per cent are industrial companies.

In general, Science and Technology Parks have proved to be useful vehicles for research-industry interactions. Different Science and Technology Parks exhibit different characteristics due to the environments in which they are set up and the actors involved.

Rapid advances that are being made in new and emerging technologies in such fields as information, telecommunications, environment, clean energy, health, materials and transportation technologies, and the increasing pace of globalization are imposing a new social and ethical responsibility on the scientific and technological community to direct applications of these new developments in ways that strengthen efforts for achieving the objectives and goals of sustainable development.

This document outlines a proposal for the development of international partnerships through the Science-and-Technology-Park mechanism that will focus on science and technology innovations in pursuit of sustainable development. It will adopt a networking approach along the lines of the Consultative Group for International Agricultural Research (CGIAR) with an international, rather than a national or local focus, and will be designed to pay particular attention to the science and technology needs of developing countries.

This proposal was discussed and shaped at the Beijing Forum on New and Emerging Technologies and Sustainable Development, held in Beijing, China, from 15 to 17 April 2002. Plans to proceed with the development of such an entity could be one of the concrete initiatives announced at the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, in late August and early September 2002.

**Introduction**

Science and Technology Parks are a means of supporting a knowledge-based economy, and fostering market-oriented technological development. They typically accomplish this by bringing together academic, business and governmental organizations into one physical location, and supporting interrelationships between these groups through incentives established by governmental policies. Since academic institutions tend to draw technically qualified personnel to a particular region, locations immediately near these institutions become prime candidates for such parks.

Two examples, from both the developed and developing world, are indicative:

1. The University City Science Center in Philadelphia is owned by a consortium of more than thirty academic and scientific institutions. It is physically located immediately adjacent to both the University of Pennsylvania and Drexel University. Established in 1963, it is both the oldest and largest urban research park within the US. More than two hundred technology and research-based organizations are located within the Science Center, and approximately 7,000 people are employed there. The Center was the world's first business incubator, and has also been the most successful - it has launched approximately 250 private sector companies during the past three decades.

2. In China, the Zhongguancun Science and Technology Park is the first state-level high-technology development zone. There are many research institutions and universities with within its borders, including Beijing University, Tsinghua University, and institutes of the Chinese Academy of Science. And also, around one third of the members of both the Chinese Academy of Science and the Chinese Academy of Engineering can be found within the Science and Technology Park. The Science and Technology Park currently has five zones in which houses not only Chinese enterprises, but also local subsidiaries of internationally recognized firms such as IBM, Microsoft and Mitsubishi. In the Tenth Five-year Plan period (2001-2005), several major construction projects are being launched, including software, biotechnology/medicine, telecommunications and other high technology industries.

Both of these parks have developed and implemented a series of policies designed to provide assistance to fledgling enterprises and organizations, thereby laying an important foundation for establishing world-class science/technology entities. Such an approach could prove very useful in promoting much-needed new and emerging technologies for sustainable development, particularly for meeting needs in developing countries.

**Policies to Encourage Development**

A number of policies can help foster such development, and these are particularly important if the park is located within a developing country. Amongst the most important are:

1. *International Economic and Technical Cooperation.* To foster international efforts and attract science/technology companies from abroad, Science and Technology Parks often offer preferential treatment in certain areas. These might include: simplified corporate registration procedures; extensions of credit; multi-entry visas for technical personnel; and preferential siting for new facilities.

2. *The Attraction of Talent.* Academic institutions might initially attract technical personnel, but the role of the Science and Technology Park is to keep them productively engaged, and to tap their technical skills for economic development purposes. Policies designed to do this often include special provisions for work permits for scientists and engineers returning from abroad, or for foreign technical specialists who will work in the Science and Technology Park. Also, policies often focus on economic attractions, research funding, subsidies, or specialized rights that enable intellectual workers to share in the economic returns of their companies.

3. *Protection of Intellectual Property Rights.* If one expects individuals and organizations to display entrepreneurial skills, and devote considerable resources towards the development of new sustainable development technologies, then it is necessary to protect their intellectual property rights.

It is anticipated that all of these policies could be relevant for the development of a Science and Technology Park focusing upon sustainable development technologies in a developing county. As discussed below, the role of such policies will depend upon the site of the host country, as well as funding and other financial considerations.

**Proposed Tasks**

In order to explore the viability of establishing a Science and Technology Park Mechanism to focus on international partnerships for sustainable development, the following tasks will need to be undertaken:

1. *Review the Experience of Existing Science and Technology Parks*

There are many different Science and Technology Park entities in many countries. Some of these operate as independent organizations, some are attached to municipal governments, and some have national and international ties. Moreover, some have a narrow "high-tech" focus, while others have a broader technological base. This task is designed to: review the nature of these various parks; identify their institutional and/or organizational structure; estimate their "success" in developing and fostering new technological entities; and determine what fraction of these activities might be considered relevant to international partnerships for sustainable development. From these analyses, the experience garnered in previous Science and Technology Park efforts can be utilized to help establish a new arrangement for sustainable development.

2. *Target Sustainable Development Technologies*

While a wide range of technologies might be appropriate for sustainable development efforts, it may be appropriate for the Science and Technology Park to become more narrowly focused. Some existing Science and Technology Parks in developed countries have addressed solely the information and communications technologies (ICT). It may be appropriate for the proposed entity to focus on clean energy technologies, eco-environment protection, cleaner production technologies, water efficiency technologies, agriculture, health issues, or other topics of immediate concern to developing countries. An analysis is to be conducted to explore the advantages and disadvantages of such an approach, based upon market analyses, commercialization potential, existing technological factors, etc.

3. *Explore Potential of Opportunities for Fostering Partnership through the Science and Technology Park Mechanism*

Such a Science and Technology Park network may be newly established with one of the parks playing a leading role. Interest in the prospective development of such a park is to be determined, and potential ties with existing programmes (e.g., with Zhongguancun Science and Technology Park in Beijing) explored.

4. *Estimate Financial Needs and Develop Sustenance Programme*

When a potential institutional arrangement for the network has been developed, the next step will be to estimate the financial needs necessary to establish the project, and to sustain its future efforts. As noted above, a wide range of models for the development of such parks exists, and the first task will be to help select a successful one for this effort. Given the international nature of this effort, comparable seed funding is required from multilateral international agencies or bilateral donors, as well as from private industry.

5. *Establish a Plan to Develop the Partnership through the Science-and-Technology-Park Mechanism*

When these analyses have been completed, a development plan for the Science and Technology Park is to be produced, outlining: the location of the coordinating park; the nature of that facility; its technical focus; funding arrangements; financial viability; and short, medium and long term goals for new and emerging technological development. This plan should then become an instrument for promoting the role of business-science partnerships in utilizing new and emerging technologies for sustainable development - an important goal of both the Beijing Forum and the World Summit on Sustainable Development.

6. *Disseminate Information on the Establishment of the Science and Technology Park*

Information on this pilot development and on the establishment of the Science and Technology Park network for sustainable development is to be disseminated to worldwide potential partners and beneficiaries. Not only is this intended to promote their participation, but also to increase capacity building for the establishment of various other Science and Technology Parks for sustainable development, in particular for developing countries. The information dissemination is also designed to help establish an international network of Science and Technology Parks for sustainable development.

**Annex III to the letter dated 24 May 2002 from the Permanent Representative of China to the United Nations addressed to the Secretary-General**

## Building A Better Future with Knowledge & Reason

**Mr. Xu Guanhua**
**Minister, Ministry of Science & Technology**
**The People's Republic of China**

Respected Mr. Chairman,

Ladies and Gentlemen,

I wish to begin by expressing, on behalf of the Ministry of Science & Technology of the People's Republic of China, our warm congratulations to the Forum and our sincere welcome to all the distinguished guests present.

In today's world, new and high technologies represented by information technology, biotechnology and new materials have become the mainstream of scientific and technological progress. The rapid advancement of science and technology has deepened our understanding of natural phenomena and the law of nature that has allowed us to move into completely new territories for human existence and development. In the field of resources and environment, technological progress has made our comprehensive utilization of resources a lot more efficient, thus providing an effective support for easing the shortage of resources, checking environmental deterioration, improving people's health and achieving a sustainable socio-economic development. Around the world, people are busy with the building of a sustainable and recyclable economic system and the development of production modes based on environment-friendly technologies.

Correctly handling the relationship between environment and development and opting for an approach of sustainable development have become the common understanding of various countries in the world. Since the UN adoption of Agenda 21 in 1992 in particular, countries across the world have taken actions to implement the strategy of sustainable development. And all of them have made the development of new and emerging technologies as their imperative strategic choice with a view to ensuring a coordinated development of man and nature, a balanced ecology, better habitat for man, less pressure from the population explosion, higher standard of living and greater capacity of resources to meet the needs of economic and social development.

As a populous developing country, China faces a problem of uneven regional development. Its west, which covers 70.1% of the country's total land mass, is still struggling with poverty which, more than anything else, continues to obstruct its development. Such problems as shortage of resources, poor efficiency of utilization and inadequate management have persisted, making contradictions between environment and development increasingly pronounced. In a considerably long period to come, China would have to maintain a high growth rate in order to improve the people's living standard continuously, and thus the intensity of its exploitation of resources and the pressure on the environment are likely to increase steadily. A sustainable development in China, therefore, requires long term and large inputs of funds, technology and management. The development and

application of new and emerging technologies, in particular, requires the participation of all sectors of society, the integration of research bodies and enterprises and international cooperation of all kinds. The purpose of this Forum, which is jointly held by us and the UN, is to bring together high-level people from the academic, scientific, professional, business and government groups to study the partnership between the business and science communities and discuss the ways and means to use potential new and emerging technology to promote technological cooperation and capacity building at the local level.

For many years, the Chinese Government has made unremitting efforts to coordinate environment and development. We have achieved notable successes in promoting the clean and efficient use of coal through technological progress, improving the comprehensive management of land resources through the application of information technology, reducing automobile exhausts and atmospheric pollution through the wider use of clean energy. From 1981 to 1999, energy consumption per 10,000 RMB of GDP was cut back by 60%, representing an average annual energy saving rate of 5%. Countrywide energy efficiency has increased from 25% in 1980 to the current 34%. Our progress in the development of new energy and renewable energy as well as our breakthroughs in the key technologies of proton fuel battery and conversion of methanol into hydrogen are likely to provide new alternatives to power our future environment-friendly automobiles and render solid and reliable technological support for a sustainable socio-economic development in China.

Under China's key technologies R&D program and the national hi-tech R&D program, we have set up an array of major technology projects in the study of population, resources and environment, developed some know-how related to family planning and health, exploitation and protection of resources, clean and new energies, clean production, information technology, biotechnology, pollution control and eco-system maintenance, natural disaster forecast and monitor, production safety and public security, development of towns and human habitat maintenance, and cultural and sports undertakings, and improved our technological capacity for sustainable development by solving some critical problems bearing on it.

Protecting global environment is the common responsibility of all human beings. And sustainable development requires the concerted efforts of the entire international community. Despite the countries' achievements in implementing *Agenda 21*, the tendency of a deteriorating global environment has not been fundamentally reversed. As economic globalization further quickens, most developing countries remain troubled by such ills as worsening environmental quality, depletion of natural resources, rising poverty and severe lack of fund. Poverty and inadequate access to fund, information and technology continue to impede the sustainable development process in the developing countries.

What deserves our attention is that the global partnership of cooperation pioneered by the *1992 UN Conference on Environment and Development* 10 years ago is far from being realized. Not only has the 0.7% goal of ODA as pledged by most developed countries not been met, the percentage is becoming even slimmer. Such offers as preferential transfer of clean production and environment friendly technologies, especially technologies relating to global environment, remain unfulfilled due to dubious excuses of so-called market mechanism. The rapid development of new and high technologies in recent years has made the knowledge gap and technology gap among countries even wider. Developing countries are

experiencing even greater difficulties in obtaining and utilizing new technologies. This, undoubtedly, seriously hurts the global process of sustainable development, which explains why it has become such an important agenda item in promoting sustainable development worldwide.

Nevertheless, we still have grounds to be optimistic about the future. Throughout evolution of human society, man was brought in face of confusion and perplexity on numerous occasions. Yet the sunshine of reason has always been able to disperse the mists of shortsightedness and ignorance. More and more politicians and scientists have come to realize that planet earth is our common homeland which can never see a successful sustainable development when extreme difference and extreme poverty coexist. Though our path ahead may be longer and more tortuous than expected, I have a full confidence in our future. And our forum will give a full expression to our confidence and pursuit.

Ladies and Gentlemen,

Ours is a time of opportunities and challenges. Representing the great nation that made outstanding contributions to human civilization, the Chinese people and their government are ready to perform their bounden duty to the new century and the entire mankind. Let us work hand in hand to build an even better world.

May the forum achieve a complete success.

Thank you.

## Annex IV to the letter dated 24 May 2002 from the Permanent Representative of China to the United Nations addressed to the Secretary-General

### Take Full Advantage of Science and Technology And Jointly Promote Sustainable Development of Mankind

**Madame Deng Nan**
**Vice Minister, Ministry of Science and Technology**
**The People's Republic of China**

His Excellency Mr. Nitin Desai, the Under Secretary General of United Nations

Ladies and gentlemen,

It's a great pleasure for me to be here to this forum. First of all, I would like to convey the congratulations from Mr. Xu Guanhua, Minister of the Ministry of Science and Technology of China, and also would like to warmly welcome to all participants to the forum.

This conference is held to enhance exchanges and cooperation between the scientific and business communities, in a bid to take full advantage of what science and technology has to offer, particularly what new technologies have to offer, to implement the sustainable development strategy. As an important activity in the leadup to the World Summit on Sustainable Development to be held this August in Johannesburg, South Africa, this forum will exert a far-reaching influence on sustainable development not only in China but also in the world at large. I'd like to share with you here my views on how to promote exchanges and cooperation and build a partnership between the scientific and business communities.

**Science and technology as foundation for human sustainable development**

We have witnessed in recent years how the rapid rise of new technologies and related industries has touched off a global wave of industrial restructuring and upgrading. The rapid development of science and technology has provided effective ways to alleviate resource shortages, curb environmental deterioration, improve human health, and realize sustainable development. Through progress and innovation in science and technology, mankind has made great strides in transforming our traditional mode of development, reducing environmental pollution and reasonably utilizing resources, laying a foundation for the establishment of a sustainable and cyclical economic system and mode of production. It is fair to say that scientific progress and innovation are the key to ensuring economic and social sustainability.

At the same time, however, we must realize that many problems still remain unresolved. In particular, developing countries have not been able to take advantage of new technologies to effectively solve their problems of economic underdevelopment, shortages of resources and environmental pollution. In other words, they have not been able to share the benefits of technological progress. To some extent, therefore, technological advancement has not only failed to eliminate poverty for developing nations but has on the contrary widened the gap with developed countries in economic development and technological applications.

As the most populous developing country in the world, China faces increasingly acute challenges arising from unbalanced development of population, resources and environment along with rapid economic growth. These imbalances seriously inhibit the sustainable development of China's economy and society. To ensure harmony between mankind and nature and alleviate the pressure on resources and the environment exerted by social and economic development, nations around the world, including China, see science and technology as an alternative of major strategic importance to solve their problems.

**Sustainable Development in China: Practices and Experiences**

Although the advancement of sustainable development as an idea represented a breakthrough in human social development, there are bound to be variations from country to country in their approaches to solve the problem of environmental/developmental imbalance, given their different level of economic development and national conditions.

At the heart of the sustainable development strategy , we believe, is development. Without economic development as the foundation, humankind cannot resolve the resource/environmental problem. The Chinese government has long focused its developmental strategy on economic growth, poverty alleviation and common prosperity. We have never neglected the population problem, the resource problem or the environmental problem in that process, however. President Jiang Zemin has stressed, "We must uphold sustainable development as a major strategy throughout the process of modernization. We should put population control, resource conservation and environmental protection on the top of our agenda, so that the population growth will match the development of productive forces and economic development is commensurate with our resource and environmental conditions. In other words, we will achieve a virtuous circle."

Proceeding precisely from that guideline, the Chinese people and government have made great strides over the last decade in achieving sustainable development. I'd like to give you a briefing here on our experience.

First of all, government support and a sound organizational and administrative body are two important safeguards to sustainable development. The Chinese government holds an annual work conference on population, resource and environment to study ways to resolve problems arising in the course of development. The meeting is attended by leading officials at both central and local levels. Environmental protection is part of the performance review for local governments.

After the Rio Conference on Environment and Development in 1992, the Chinese government formed a Leading Group for China's Agenda 21 in order to draft and implement China's Agenda 21. That group was co-chaired by the State Development Planning Commission and the Ministry of Science and Technology, with members from 58 ministries and social organizations. Subsequently, similar bodies have been formed at local levels. In 2000, in light of changed circumstances, that group was renamed the National Leading Group for the Promotion of Sustainable Development Strategy to translate the concept into government decision-making and specific actions.

Second, we have incorporated sustainable development into socio-economic development plans drafted by local governments and central government departments. In fact, sustainable development is a fundamental principle for the

Chinese government in making policies and drawing development blueprints. In the country's ninth and 10th five-year plans (1996-2005), sustainable development is unequivocally designated as an issue of strategic importance. To implement sustainable development, for example, we have formulated a plan for the nation's ecological buildup and executed a series of projects to preserve the environment. This includes a project to encourage farmers to return farmland to grassland or forestland, a project to curb soil erosion, and a project to take an integrated approach to protect the environment. Our objective is to ensure a sound working and living environment along with rapid economic growth.

Under the framework of China's Agenda 21, various ministries have developed a Priority Projects Program, an Action Plan for Agriculture, an Agenda 21 for Water Conservation, and various others. Most provinces have made their own agenda 21 or action plans. Many local governments at county level have also taken policy measures or drafted action plans for their own jurisdictions.

Third, we have paid special attention to encouraging participation in the implementation of the strategy by localities, enterprises and the public. To mobilize public participation and explore new mechanisms and models for sustainable development, the Chinese government has undertaken various pilot projects at select localities and enterprises. This has been done through institutional and technological innovation. In 1998, we selected Beijing, Hubei and 14 other localities to pilot the local Agenda 21 capacity-building project. In addition, the central government and local governments have also built a host of experimental zones for sustainable development. To date, 40 such zones have been built at the state level and 60 at provincial level. Furthermore, we have built various ecological demonstration zones, eco-agriculture counties and garden cities around the country. These pilot projects and demo projects have not only spurred local economic development but have also generated many good practices for application on a larger scale.

Fourth, we've also found it very important to formulate policies and use new incentives to promote the commercialization of scientific findings in implementing sustainable development. China is in a tradition toward a socialist market economy. This system on the one hand relies on the ability of the central government in regulating the macro economy and pooling human and material resources to advance science and technology and related commercialization efforts; on the other hand, it also relies on market forces for allocation of resources and improvement of efficiency in new technology development and commercialization. Meanwhile, we have introduced a series of policies aimed at bringing the economy and science and technology closer together. These include policies to encourage research institutes to restructure themselves as enterprises; policies to develop small and medium-sized technology companies; policies to develop intermediary services; policies to encourage commercialization of high-tech findings through technology-as-equity, technology transfer or technical cooperation; policies encouraging scientists and technology talents to take up jobs at enterprises; policies encouraging research institutes, universities and enterprises to jointly build R&D centers; and policies at improving protection of intellectual property.

**Promoting R&D and Commercialization to Facilitate Sustainable Development**

After decades of hard work, China has built a fairly complete economic system and has basically solved the problem of feeding and clothing its population. However, the country's economic foundation remains fragile and we face three historic tasks

of industrialization, urbanization and modernization at the same time. Many pressing issues remain unresolved in the areas of population, resources and environment, and socio-economic development has yet to be brought into harmony with the nation's population, resource and environmental conditions. Science and technology will be instrumental in rebalancing those relationships and achieving sustainable development.

According to the 10th five-year plan for national economic and social development and a special plan for development of science, technology and education under that master plan, during 2001-2005, the central government will increase spending on science and technology. This includes direct R&D spending by the state and exemplary R&D spending on behalf of the state. To accomplish the objectives set forth in that special plan, the Ministry of Science and Technology has developed a schedule that includes sections on high-tech R&D, pooling resources to tackle key technologies, basic research, R&D capacity building, and commercialization of science and technology. These plans will guide local governments, enterprises and the private sector toward utilizing their financial and material resources to solve technology-related problems in economic and social development.

In addition, the Ministry of Science and Technology is also drafting an Outline for Science and Technology in Sustainable Development as a guideline for science and technology work. Integrating government objectives with market demand, this document is designed to guide the R&D of a number of key technologies instrumental to sustainable development, strengthen demo projects, step up capacity-building for basic research, and accelerate commercialization.

Capacity-building and climate-building for commercialization are two priority areas for scientific and technological development in the next five years. We will improve R&D conditions through subsidizing key national laboratories and research projects; we will also develop small and medium-sized technology companies and encourage intermediary services. In particular, we will pay special attention to the construction of science parks and productive force promotion centers run by universities and build an environment conducive to technology commercialization and industrialization.

To address the issue of unbalanced development between different regions, the Chinese government is implementing a Go West campaign, stressing that science and technology and education must take the lead in this campaign. To this end, we have implemented a special action plan for science and technology in western development. Basically, that plan calls for integration of various science and technology action plans, paying particular attention to the role of new technologies in western China. On top of the plan are measures to promote the integration, development, demonstration and application of related technologies to support ecological buildup for that part of the country. In addition, the plan also seeks to facilitate capacity-building and promote east-west cooperation in order to enhance the self-sustaining capabilities of western provinces.

**Join Hands to Address Issues Facing Developing Countries**

Currently, due to their weak capacities, developing countries face a host of problems and difficulties in utilizing science and technology to promote sustainable development. These include:

First, a low level of science and technology in general. Overall, developing countries lag far behind developed countries in science and technology. Currently, traditional industries are still the predominant industries in developing countries; high and new technology constitutes only a minimal percentage of their economy. They are even weaker when it comes to technological commercialization. In 1998, of the 347,000 patents published in the world, OECD nations accounted for 91%. In terms of scientific papers published, developed countries in Europe and North America account for less than 20% of the world's population, but their scientific papers amount to 75% of the total.

Second, an insufficient capacity for science and technology. Due to a lack of financial and technical support, developing countries are universally incapable of developing, commercializing and applying new technologies to implement sustainable development, trailing far behind developed countries. R&D spending in developed countries exceeds 2.5% of their GDP, compared with a mere 0.3% in the developing world. In education and training, developing countries spend less than 3% of their GDP, compared with 6% by developed countries. The situation is compounded by the many barriers in international technical cooperation and technology transfer, with the result that developing countries have to introduce duplicative traditional technologies from developed countries. Large sums of money have been wasted and developing countries are hampered in their R&D efforts.

I would like to make the following recommendations here to address the above-mentioned problems.

First, give full play to the role of governments in building a partnership between the business community and the scientific community. Governments should encourage enterprises to discontinue environmentally unsound ways of production and maintain an ecological balance through macroeconomic regulation, regulatory measures and reasonable incentives.

Second, strengthen exchanges and cooperation between the business and scientific communities and promote commercialization of research outcomes. The scientific and business communities should join hands and promote sustainable development together through a regular, formal and multi-level mechanism of communication. Governments should also play an important role in this regard by building a sound environment for enterprises to research, develop and apply new technologies and to facilitate technology transfer. Governments in developed countries, in particular, should adopt preferential policies and incentives to encourage new technology transfers to developing countries to facilitate sustainable development.

Third, work together to build up capacities of developing countries. Important as it is, a business-science partnership alone is not sufficient. Such a partnership cannot replace the basic principle established at the Rio conference, i.e. the principle of "common but differentiated responsibilities". This is a cornerstone for settling the issue of environment and development. Currently, developing countries badly need human and financial resources to boost their scientific and technological capabilities. Governments around the world and the international community at large should conduct effective international cooperation in building capacities for developing countries to develop and apply new technologies.

Mr. Chairman, ladies and gentlemen,

The world summit meeting on sustainable development will be held soon in South Africa. As part of the preparatory activities for the summit, this conference will have a significant role to play in using science and technology to promote sustainable development and in building a scientific-business partnership. We look forward to seeing specific actions to be taken by the international community to implement Agenda 21 and promote sustainable development on a global basis. We stand ready to work with countries around the world to contribute to the preparations and success of the summit meeting.

May I wish this conference a great success.

Thank you.